

E-911  
Express Mail Label # EJ706015299US

What is claimed is

*Pat 10/17*

1. A planning engine for use in a planning system for planning the shipment of a parcel of at least one item, the planning including routing and rating the shipment, the planning system including a router for determining possible routes for the shipment, a rater for rating each possible route, a consolidator for attempting to consolidate a list of shipments, and a prorater for allocating costs of a consolidation among the consolidated shipments, the planning system also having read and write access to a shipping database, the planning engine comprising:
  - a) an input module, responsive to a planning request indicating at least one shipment for which planning is to be performed, the planning request being provided in one of at least two forms, the input module for providing a list including each shipment for which planning is to be performed;
  - b) a load list template builder, responsive to the list including each shipment for which planning is to be performed, for providing a load list template indicating at least one load, each load having an associated stop, each stop having an associated shipment, each shipment having at least one associated item;
  - c) an analyzer, responsive to the load list template, for planning in turn how to ship each of the shipments indicated by the load list template by making use of the router and the rater, for providing a load list indicating a carrier and service for each shipment of the load list template; and
  - d) an output module, responsive to the load list, for providing the load list in a manner corresponding to the form of the planning request information.
2. A planning engine as in claim 1, wherein the planning engine is implemented as a component object module (COM) server.

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3. A planning engine as in claim 2, wherein the planning engine passes the router the load list template and the router then determines possible routes for each load of the load list template, the router referring to business rules and to a means for prioritizing the business rules in case of conflict, the router returning to the planning engine a carrier list indicating acceptable routes in terms of a list of carriers and one or more services for each carrier.

*and 4b*  
4. A planning engine as in claim 3, wherein the planning engine passes the rater the carrier list and the rater then provides component costs for each of the acceptable routes, and the planning engine then selects a route from the list of acceptable routes.

5. A planning engine as in claim 4, wherein the planning engine passes the consolidator the load list template indicating each shipment as a direct shipment and the consolidator provides in return a consolidation load list template indicating loads that are possible consolidations of shipments in the load list template indicating each shipment as a direct shipment.

6. A planning engine as in claim 5, wherein the planning engine uses the router and the rater to route and rate the possible consolidations to determine routing and rating for each possible consolidation.

7. A planning engine as in claim 6, wherein the planning engine passes the prorater a selected rated consolidation, and the prorater then determines an apportionment of the costs for the consolidation among each of the consolidated shipments.

8. A planning engine as in claim 7, wherein in case of a possible consolidation of a shipment with other shipments, the planning engine decides whether to

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consolidate the shipment based on a comparison of the costs for the shipment being shipped as opposed to being shipped in the consolidation.

9. A planning engine for a parcel management system wherein said planning engine is an component object module (COM) automation server that can be selectively initiated from one or more applications resident in said parcel management system without interface to a system user; said planning engine comprising:

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b7d*

- (a) first access means for accessing pick-pack functionality within a pick-pack application interoperatively connected to said parcel management system;
- (b) second access means for accessing shipment processing functionality within a shipment processing application interoperatively connected to said parcel management system;
- (c) load structure determining means for determining load structure as a function of a set of shipment properties introduced to said planning engine by said first access means and said second access means;
- (d) parcel route determining means for determining a most effective route for a shipment of a parcel via a carrier in accordance with said set of shipment properties;
- (e) third access means for accessing a rates database and activating a rate determining means for determining a rate value for said shipment via said carrier in accordance with said set of shipment properties and wherein said rate determining means further comprises rate shopping means for determining a most effective rate among a set of one or more rates for said shipment via said carrier in accordance with said set of shipment properties; and
- (f) reporting means for reporting to said parcel management system and to said system user information relative to performance progress, shipment status, and completed tasks.